Name: Date:
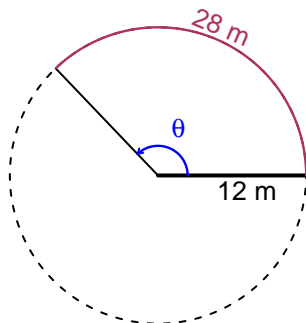
Trig Final (Practice v39)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 12 meters. The arc length is 28 meters. What is the angle measure in radians?
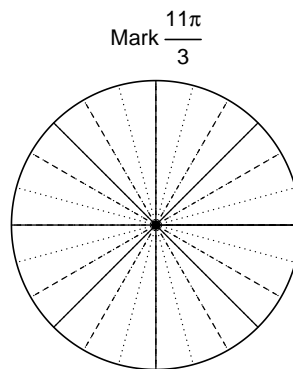

Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-9\pi}{4}\right)$ and $\sin\left(\frac{11\pi}{3}\right)$ by using a unit circle (provided separately).

Mark $\dfrac{-9\pi}{4}$

Find cos(−9π/4)

Mark $\dfrac{11\pi}{3}$
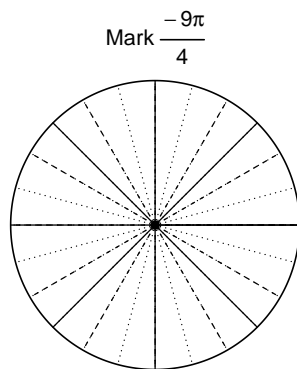
Find sin(11π/3)

Question 3

If $\sin(\theta) = \frac{-80}{89}$, and θ is in quadrant III, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -2.17$ meters, a frequency of 8.76 Hz, and an amplitude of 6.46 meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).